

Appl. No. 10/045,706
Amdt. Dated December 27, 2004
Reply to Office action of September 29, 2004

REMARKS/ARGUMENTS

This amendment is being submitted in response to the Office Action dated September 29. In the Office Action, claim 4 and 5 were rejected under 35 USC § 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter. Applicants respectfully submit that Claims 4 and 5 have been corrected to overcome the rejection.

Claims 1-8 and 16-19 were rejected under 35 USC §102(b) as being anticipated over Garfield et al. (US Patent 5,777,073). Claims 1-9 and 16-20 were also rejected under 35 USC §102(e) as being anticipated over Maalouf et al. (US patent 6,678,552). No new matter has been added. Claims 1-26 remain pending in this application. Reconsideration in view of the above amendments and following remarks is respectfully requested.

STATEMENT CONCERNING 102(e)

Applicants have noted the rejection under 35 USC § 102(e), in which the Maalouf reference (US patent 6,678,552) has been used to reject the Applicants' present invention. Applicants respectfully submit that the Maalouf reference and Applicants' present invention both relate to a method and apparatus for detecting uterine contractions. Applicants' respectfully submit the Maalouf reference and Applicants' present invention are commonly owned by General Electric Company at the time of filing of each application. Further, there are inventors common to both the Maalouf reference and the present invention. The inventors of the Maalouf reference are Khalil John Maalouf and Yibin Zheng. The inventors of the present invention are Ralph Thomas Hocter, Khalil John Maalouf and Yibin Zheng. As such, Applicants are unable to submit an affidavit under 37 CFR 1.131 (see MPEP 706.02(b)). Applicants respectfully request reconsideration of the rejection under 35 USC § 102(e) and withdrawal of the same given Applicants' statement of common ownership.

Claims allowable over the applied art

The rejection of claims 1-9 and 16-19 over Garfield (US Patent 5,777,073) is respectfully traversed. The present invention, as claimed in amended independent Claims 1 and 16 are patentable over the Garfield reference. The Garfield reference does not teach, suggest or disclose each element of the present invention as claimed in claims 1 and 16. Specifically, the present invention claims a system for processing electromyogram (EMG) input signals from an external abdominal surface to detect uterine contractions. The system comprises a sensor configured to detect an EMG signal and to generate a corresponding EMG input signal and a

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signal processor coupled to the sensor and configured to generate a respective EMG prediction error signal. The prediction error signal given by also known as the forward prediction error, since it is the error in predicting an observation based on past observations of the signal and thus a prediction whose sense is forward in time. In Applicants' present invention, the present value of the EMG input signal is predicted by a combination of the past values of the EMG input signal. During the uterine contraction event, the EMG input signal exhibits non-stationary characteristics in that the frequency content of the signal changes with time. The prediction coefficients are computed by processing a segment of contiguous data in the digitized EMG input signal (paragraph 18). In addition, at the onset of the uterine contraction, the spectral characteristic in the EMG input signal changes which results in a change in the amplitude of the EMG prediction error signal. The change in amplitude of the EMG prediction error signal, indicative of the change in the spectral characteristics of the EMG input signal, can provide an indication of both the onset and conclusion of the uterine contraction (paragraph 19).

The Garfield reference does not teach or suggest a signal processor coupled to the sensor and configured to generate a respective EMG prediction error signal, where the prediction error signal representing the error in predicting an observation based on past observations of the signal and thus a prediction whose sense is forward in time. The Garfield reference teaches a method and apparatus for analyzing uterine electrical activity from surface measurements for obstetrical diagnosis. Specifically, Garfield teaches an expert system that is programmed to analyze the frequency, duration, amplitude and power density spectrum of action potential bursts and individual action potentials. The expert system is further capable of characterizing uterine activity and identifying muscle contractions, based upon such analysis. The Garfield reference also indicates that the expert system is capable may compare records from the same patient taken at different times during her pregnancy and predict the onset of labor at term. Nowhere, does Garfield teach, suggest or disclose generating a prediction error signal representing the error in predicting an observation based on past observations of the signal and thus a prediction whose sense is forward in time. In addition, the Garfield reference does not teach, suggest or disclose generating a prediction error signal that is capable of predicting the onset and conclusion of uterine contractions as described by Applicants invention.

Therefore, the present invention, as claimed in claims 1 and 16 are patentable over the Garfield reference. Claims 2-8 depends directly or indirectly from claim 1 and claims 17-19 depend directly or indirectly from claim 16 respectively and are allowable by dependency. Withdrawal of the rejections is respectfully requested, and allowance of claims 9-15, 17-26 and 32-39 is respectfully solicited.

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In view of the foregoing amendment and for the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Should the Examiner believe that anything further is needed to place the application in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,



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